

## NEW AND LITTLE-KNOWN AMERICAN MOLLUSKS, No. 2.

BY H. A. PILSBRY.

*Pupa calamitosa* Pilsbry. Pl. 12, figs. 16, 17.

Shell minute, cylindrical, very blunt at apex, chestnut colored; whorls  $4\frac{1}{2}$ , the first one and one-half smooth, the following regularly costulate striate, the costulae separated by spaces wider than themselves; last whorl abruptly turning forward, rounded beneath, encircled by a slight central constriction or furrow; aperture about one-third the total length of shell, rounded, truncated above, contracted within; peristome thin, expanded, without crest or callous thickening behind; columellar margin rather dilated; parietal wall bearing two entering lamellae, one arising near the termination of the outer lip, the other more deep seated, elevated, entering less obliquely; columella with a strong white deep-seated obliquely entering fold; outer lip with two short white lamellae.

Alt. 1.70, diam. .80 mill.

Two trays of this tiny species are before me. One received from Henry Hemphill, collected near the mouth of San Tomas river, Lower California, the other collected by Orcutt near San Diego, Cal. Most specimens show the widening inward of the outer lip shown in the figure. Several specimens have only one lamella on the outer lip, and are rather larger than the typical form described, measuring 1.90 mill. alt. The second parietal lamella is usually much larger than the first, but in one or two specimens before me this is not the case. The umbilical rimation terminates in a tiny depression, perhaps minutely perforated at the axis. The formula of denticles or folds (according to Dr. Sterki's scheme\*) AA B D E or AA B E. The species is of a decidedly different type from any known American *Pupa*. *P. hordacea*, *californica*, and *rowelli*, abundant western forms, belonging in quite diverse groups; the first being allied to *P. corticaria* and *pellucida*, the latter grouping with *P. decora*, *rowelli* and *corpulenta*.

From the *Pupæ* of the Mexican fauna, *leucodon*, *pellucida* and *chordata* the present species is quite distinct in every respect.

The inward continuation of the parietal and columellar folds is shown in figure 17. They are white, regularly veined with darker, like polished plates of agate.

\* See Proc. U. S. Nat. Mus. 1888, p. 369. I have repeated the letter representing the parietal fold, as the two seem to be of equal importance.

*Pupa sterkiana* Pilsbry. Pl. 2, figs. 2, 3.

Shell rimate, perforate when young, cylindrical, blunt at both ends, opaque, chestnut-brown; surface obliquely sculptured with strong, rather irregular costulae, which often split or branch; suture very deeply impressed; whorls 7, the first one smooth, the last five of about equal diameter, very convex; last whorl a little ascending to the aperture, without crest or scrobiculation behind the peristome; aperture a trifle oblique, rounded, truncate above; lip expanded, continuous, thin, white, without teeth or folds; umbilicus deeply impressed, appearing very narrowly perforated.

Alt.  $4\frac{1}{2}$ , diam.  $1\frac{3}{4}$  mill.

Alt. 4, diam.  $1\frac{1}{2}$  mill.

Specimens of this species are in the Academy from Lower California. They were received from Mr. C. R. Oreutt of San Diego, Cal. The large size (much exceeding any other West American *Pupa*) toothless lip and strongly costate surface will at once distinguish it. The peristome is continuous as a slightly elevated lamina across the parietal wall. The columella has a very obtuse, blunt, deep-seated fold.

*Zonites simpsoni* Pilsbry. Pl. 12, figs. 8, 9, 10.

This species belongs to that group of *Hyalina* comprising *capsella* Gld., *lawi* W. G. Binn., and *placentula* Shutt.,—species with narrow umbilicus, numerous closely coiled narrow whorls, and without a callus or thickening within the base of the last whorl. *Z. simpsoni* differs from *placentula* in its much smaller size, nearly straight, instead of arcuate basal lip, seen from beneath, proportionately wider last whorl, and the more trigonal, wider aperture. With *Z. lawi* I need not compare, as that species is much larger and more elevated. *Z. capsella* is about the same size, color and texture as *simpsoni*, but has a narrow umbilicus and very much narrower aperture, narrowly semilunar instead of trigonal in outline. *Z. simpsoni* has 5 whorls. Alt. 2, diam. maj.  $4\frac{1}{2}$ , min. 4 mill.

The specimens before me were collected by Mr. C. T. Simpson at Limestone Gap, Indian Territory. The trigonal form of the aperture is so peculiar that the species may be separated from *Z. capsella* at a glance. My comparisons were made with specimens of *capsella* received from Gould, and *placentula* from W. G. Binney. The figures are camera lucida drawings.

**Zonites selenitoides** Pilsbry. Pl. 12, figs. 13, 14, 15.

This species is similar in form and general appearance to *Z. minusculus* Binn., though decidedly larger. The umbilicus is broad, as in the latter species. The shell is thin, light yellowish-horn color, almost white. Surface shining, covered with close strong oblique rib-striae, like *Patula striatella*; these striae while generally regular, sometimes bifurcate, or separate to give room for another to be intercalated. The spire is flatter than *minusculus*, nearly plane. The earlier  $1\frac{3}{4}$  to 2 whorls are smooth, polished, not striate; the sutures are well impressed. There are  $3\frac{1}{2}$  whorls in all, convex, gradually widening, the last proportionately wider than in *Z. minusculus*. Aperture slightly oblique, lunate, narrower than in *Z. minusculus*, its margins thin, acute, scarcely converging, the columellar shortly subreflexed.

Alt. 1.2 mill., diam. 3 mill.

The specimens were presented to me by Mr. W. G. Binney, who regarding them as new, kindly permitted me to describe them. They were gathered by Hemphill, Prince of collectors! at Mariposa Big Trees, California. The name *selenitoides* is given because of a certain resemblance to the little *Selenites durantii* of Southern California.

**Helix (Hemitrochus) streatori** Pilsbry. Pl. 12, fig. 1.

Shell imperforate, depressed, thin but rather strong, resembling in contour *Hemitrochus amplexa* Gundlach of Cuba. It is white, with dark purplish-brown apex and a narrow, well-defined supra-peripheral band of the same color. Above this band there are two lighter, interrupted subobsolete bands (sometimes confluent into one); on the base there is a zone composed of several interrupted lines or narrow bands, close together or confluent, broken into blotches, fading into the ground-color on the edges, with a tendency to form short streaks in the direction of the growth lines. Surface shining, finely obliquely striate, except the smooth  $1\frac{1}{2}$  apical whorls. The spire is low-conoidal; apex blunt; sutures evenly, moderately impressed; whorls  $4\frac{1}{2}$ , slightly convex, the last depressed, deflexed toward the aperture. Aperture very oblique, transversely oval, obliquely truncated by the parietal wall, distinctly showing a band within; peristome thickened inside, upper margin simple, outer a little expanded, basal narrowly reflexed, brown, appressed over and closing the narrow axial perforation.

Alt. 7, greater diam. 12, lesser diam. 10 mill.

I received this species from Mr. John Ford, to whom it was transmitted by Mr. Geo. J. Streator of Garrettsville, Ohio. It was collected on Cayman Island (an islet lying about 200 miles south of Central Cuba) by Mr. Clark F. Streator, whose name I have given the species.

*H. streatori* belongs evidently to the section *Hemitrochus*; and like the other species of that division the axis is perforated in young shells. There is a general resemblance in form and color-pattern to *H. amplecta* but that shell and its allies are umbilicate. Its affinity is greatest with Tryon's *H. guassoini*,<sup>1</sup> described from the tiny islet of Navassa, but the *streatori* is more depressed, with more oblique aperture, fewer more rapidly enlarging whorls, etc. These two shells, *guassoini* and *streatori*, should be inserted in my monograph of *Hemitrochus* in the Manual of Conchology immediately following the group of *amplecta*, *rufoapicata* and *graminicola* (p. 37). It may be noted that with the exception of the last-named form, these two are the only species of *Hemitrochus* ranging south of Cuba.

**Helix (Mesodon) kiawaensis** Simpson. Pl. 12, f. 11, 12.

The jaw (fig. 11) and dentition of this species are here figured from one of the original specimens. A rhachidian tooth with three adjacent laterals (*l.*) are figured, with a group of transition teeth (*tr.*) and three marginal teeth (*m.*). The affinities of the species are with *H. sayi* Binn., agreeing with that form in the long penis, and other details of genitalia.

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NOTE: The following description and figures 6 and 7 of pl. 12 have been communicated to me by Dr. V. STERKI, of New Philadelphia, Ohio. Figures 4 and 5 of the same plate are camera-lucida drawings of a specimen received from Dr. Sterki.

**Pupa holzingeri** Sterki. Pl. 12, figs. 4, 5, 6, 7.

Shell narrowly perforated, turreted-cylindrical, vitreous (or whitish), very minutely striate, shining; apex rather pointed, whorls 5, regularly increasing, well rounded, especially the upper ones, the last somewhat narrowed and a little ascending towards the aperture, compressed at the base but not carinated, at some distance from the outer margin provided with an oblique, rather prominent, acute crest corresponding in direction to the lines of growth, extending

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<sup>1</sup> See description and figures from types, Manual of Conchology (Pilsbry's continuation), vol. v, appendix, p. 197, pl. 63, figs. 14, 15.

from the base to the suture, formed by a whitish callosity; behind the crest the whorl is flattened, and corresponding to the lower palatal lamella, impressed; aperture lateral, scarcely oblique, relatively small, inverted subovate, with a slight sinus at the upper part of the outer wall, margins approximated; peristome moderately reflected; lamellæ 6; one parietal, rather long, very high, in its middle part curved outward, towards the aperture, bifurcated, the outer branch reaching the parietal wall; one columellar, longitudinal, rather high, its upper end turning in nearly a right angle towards the aperture, but not reaching the margin; basal exactly at the base, short, high, dentiform; 3 in the outer wall, viz.: the lower palatal long, ending in the callus, highest about its middle; the upper short, rather high on the callous; above the upper one a supra-palatal, quite small, dentiform, nearer the margin.

Length 1·7 mill., diam. 0·8 mill.

In the spring of 1887, Mr. John A. Holzinger, of Winona, Minn., sent me a lot of small *Pupæ*, among which there was one specimen of a new species. It was a dead, weather-beaten, poor shell, but evidently adult. By repeated, ever so careful examinations it broke to pieces, but not before I had made a drawing and description of it. Mr. Holzinger as well as a few of his students then endeavored to secure more specimens, but all their efforts have been in vain, so far. In 1888, in a vial of *Pupa* from northern Illinois sent by Mr. Wm. A. Marsh, I found a few more specimens of evidently the same species, the shells fresh and good. This year, at last, among a number of small *Pupa* collected at Davenport, Ia., I was fortunate in detecting three more examples. The validity of the species was, consequently, established; and on the other hand it proved to be a form quite distinct, and readily separable from all other species.

It is a most interesting and valuable addition to our malacological fauna as it belongs to a specifically American group,<sup>1</sup> viz.: that of *P. armifera* and *P. contracta* Say; but it is much smaller than the latter of the two named as this is than the former. Yet the three together form a well characterized and well-defined group of evidently common origin, and it may be possible sometime, and would be an interesting task of paleontology, to detect a fossil form, or forms, from which the recent ones are derived.

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<sup>1</sup> It is possible and even probable, however, that certain species of *Pupa* described from eastern Asia range among the same group; yet as I have seen no specimens and know them only from the descriptions, I am unable to judge of them.

So far, it has not been possible to examine the soft parts and thus complete our knowledge and description of the species; but it is to be expected that the necessary fresh, if possible living specimens will be found, and I hereby would invite the active collectors of the north-western states to look especially for this *Pupa*, in order not only to make a complete examination, but also to know more about its geographical distribution, and possible variation.

As already stated, our species ranges with *P. armifera* and *P. contracta* Say, standing nearer the latter. Yet it is different from this species by the shape of the aperture, the wanting callus<sup>1</sup> connecting the margins on the body-whorl, by the longer crest behind the aperture, which in *contracta* disappears in about the middle of the (height of the) whorl, and by the wanting constriction, especially in the columellar wall, not to speak of the size and shape of the whole shell. The lamellæ also show some marked differences, such as the presence of a high basal, the shorter columellar not reaching the base, but with relatively larger horizontal part, the bifurcation of the parietal and the presence of a supra-palatal, the last just as it is in *P. armifera*.

It must be added here that the specimen first obtained from Minnesota in several respects differs from those found in Illinois and Iowa, which I consider as typical, by its size which is  $\frac{1}{3}$  smaller, by the basal lamella developed in a peculiar way, being rather longer at the truncated top than at its foot, and by the stronger, thicker palatal lamellæ. Yet, as there was only one specimen, it is likely to be an individual peculiarity; even then, of interest. Should, however, more specimens be found with the same configuration, they would represent a distinct and well-characterized variety; possibly it is a peculiar northern form.

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<sup>1</sup> In many specimens of *P. contracta* so strongly developed, that the peristome is rendered continuous.